

TECHNICAL SUPPORT DOCUMENT

For

Permit No. 37218

Phelps Dodge-Copper Queen, Bisbee

I. INTRODUCTION

Permit No. 37218 is a renewal for Air Quality Control Permit No. 1000489 which expired on February 1, 2006. The permit is being issued to Phelps Dodge Mining Company for operation of the Copper Queen facility located in Bisbee, Cochise County, Arizona.

A. Company Information

1. Company Name/ mailing address: Phelps Dodge Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603
2. Facility name/ Address: Phelps Dodge Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

B. Background

Phelps Dodge Mining Company was issued a Class II permit (Permit No. 1000489) on February 1, 2001, for operation of 5 diesel generators to support operations of copper precipitation plant at Copper Queen, Bisbee, AZ. The facility was, subsequently, issued a minor permit revision no. 30427 on January 12, 2004, to replace the then existing copper precipitation plant with BioteQ Plant which uses hydrogen sulfide produced in the reactor to produce copper sulfide from pregnant leach solution. In the interim, the facility has also decreased the number of generators to two. These generators are “standby” and are operated during the periods of power interruption from APS.

C. Attainment Classification

The facility is located in attainment area for all pollutants.

II. FACILITY DESCRIPTION

The facility has a copper precipitation plant, which removes copper from the pregnant leach solution (PLS) received from the heap leaching operation. The process utilizes hydrogen sulfide to produce copper sulfide concentrate, which is, then, shipped to the Phelps Dodge Smelter in Miami, AZ.

The power required for the facility is purchased from APS. The facility maintains 2 (two) standby generators (830 hp and 1515 hp), which operate during any power interruption from APS.

The facility also has 5 (five) screens, which are used to classify historic stockpiles to generate construction material for in-house use in reclamation and construction projects.

III. COMPLIANCE HISTORY

There were 2 cases associated with Phelps Dodge – Copper Queen Bisbee.

Case No. 4615- The facility received an Air quality Notice of correction (NOC) on October 29, 2001. This case was closed on December 10, 2001.

Case No. 27398- The facility received a Notice of Correction (NOC) for operating equipment without proper permit. The facility provided additional information and the case was closed on December 3, 2003.

IV. EMISSIONS

When operating two generators (1515 hp and 830 hp) for 8760 hours per year, the facility has a potential to emit (PTE) 246 tons per year of Nitrogen Oxides (NO_x). The facility has voluntarily proposed to operate the back up emergency generators for not more than 500 hours in one year. Based on these operation limitations, the emissions for criteria pollutants are below the major source threshold. Thus, the facility is a synthetic minor facility.

Table 1 below provides the emissions from the facility.

Table 1

Pollutant	Generators tpy	Screens tpy	PLS processing plant tpy	Gasoline St. tank tpy	Facility wide emissions tpy
NO _x	14.07				14.07
PM ₁₀	0.41	8.75			9.16
CO	3.22				3.22
SO ₂	3.79				3.79
VOCs	0.41			1.9845	2.40
H ₂ S			0.05		0.05

V. APPLICABLE REGULATIONS

Table 2 identifies the applicable regulations for the facility.

Table 2: Verification of Applicable Regulations

Unit	Rule	Verification
Internal Combustion Engines	A.A.C. R18-2-719	This standard is applicable to all internal combustion engines.
Gasoline storage tank	A.A.C. R18-2-710	This standard is applicable to storage tanks used for petroleum liquids.
Screening operations	A.A.C. R18-2-722, -702B	This standard is applicable to all screening operations

Pregnant Leach Solution processing facility	A.A.C. R18-2-730	This standard is for unclassified sources and is applicable to all equipment in PLS processing plant.
Fugitive dust sources	Article 6, A.A.C. R18-2-702.B	This Article is applicable to any fugitive dust source of air contaminants.
Mobile sources	Article 8	This Article is applicable to mobile sources, which either move while emitting air pollutants or are frequently moved during the course of their utilization.
Abrasive blasting operations	A.A.C. R18-2-726	This standard is applicable to any sand blasting or other abrasive blasting operation.
Spray painting operations	A.A.C. R-18-2-727, SIP R9-3-527.C	This standard is applicable to any spray-painting operation.
Demolition/renovation operations	A.A.C. R18-2-1101.A.8	This standard is applicable to any asbestos related demolition or renovation operations.

VI. PREVIOUS PERMIT CONDITIONS

Comparison with Conditions for Permit No. 1000489 and Minor Permit Revision no. 30427

Previous Permit Condition	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Permit No. 1000489					
Attachment “A”	x				General provisions - revised to represent most recent language.
Attachment “B”					
Condition I.A		x			This Condition for having EPA Method 9 certified has been retained.
Condition I.B		x			This condition for reporting has been renumbered as I.C.
Condition II.A.1			x		This condition for fuel usage limitation has been deleted. The facility now has limitation on operating hours under Condition III.C.1.
Condition II.A.2			x		The monitoring and recordkeeping requirement for fuel usage has been deleted.
Condition II.A.3			x		This testing requirement for Nox has been deleted as the generators are operated for emergency requirements only.
Condition II.B		x			This condition for opacity standards has been relocated as Condition III.E
Condition II.C		x			This condition for particulate matter has been relocated as Condition III.D.
Condition II.D		x			This condition for SO2 has been relocated as Condition III.F.

Previous Permit Condition	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Condition III.A		x			This Condition for Gasoline storage tanks has been relocated as Condition V.A.1.
Section IV		x			This Section for Fugitive Dust requirements has been relocated as Section VI.
Section V		x			This Section for Mobile Source requirements has been relocated as Section VII.
Section VI		x			This Section for Other Periodic Activities requirements has been relocated as Section VIII.
Minor permit Revision No. 30427					
Section VII		x			This Section for Pregnant Leach Solution processing plant has been relocated as Section II.

VII. MONITORING AND RECORDKEEPING REQUIREMENTS

- A. The Permittee is required to monitor daily the sulfur content and lower heating value of the natural gas being combusted in the engines. This requirement shall be complied with by maintaining records of fuel supplier certifications.
- B. The Permittee is required to keep records of monthly and rolling 12-month total the hours of operation of 830 hp and 1515 hp emergency generator.
- C. A certified EPA Reference Method 9 observer is required to conduct a monthly survey of visible emissions emanating from the stack of the IC engines, when in operation.
- D. A certified EPA Reference Method 9 observer is required conduct a monthly survey of visible emissions emanating from the screening operations. If the opacity of the emissions observed appears to exceed the standard, the observer must conduct a certified EPA Reference Method 9 observation. The Permittee is required keep records of the initial survey and any EPA Reference Method 9 observations performed. If the observation results in an exceedance of the opacity limit, the Permittee is required to take corrective action and log all such actions. All such exceedances must be reported as excess emissions.
- E. A certified EPA Reference Method 9 observer is required to conduct a monthly survey of visible emissions emanating from the fugitive dust sources. If the opacity of the emissions observed appears to exceed the standard, the observer must conduct a certified EPA Reference Method 9 observation. The Permittee is required to keep records of the initial survey and any EPA Reference Method 9 observations performed. If the observation results in an exceedance of the opacity limit, the Permittee is required to take corrective action and log all such actions. All such exceedances must be reported as excess emissions.

VIII. INSIGNIFICANT ACTIVITIES

The applicant has requested the following activities to be deemed as “insignificant”. According to A.A.C. R18-2-101.57, for an activity to be deemed “insignificant”, there should be no applicable requirement for the activity. This was the basis used to determine if the activities in the following list qualify as an “insignificant” activity under Arizona law.

Activity	Insignificant Yes/No	Reason and Applicable Regulation
Non-commercial (in-house) experimental, analytical laboratory equipment, which is bench scale in nature including quality control/quality assurance laboratories supporting an electric utility facility, and research and development laboratories.	Yes	A.A.C. R18-2-101.57(j)
Small pilot scale research and development projects	No	These will be evaluated on a case-by-case basis considering size, nature and amount of emissions, and duration of project. Appropriate permits will have to be obtained as required by regulations
Chemical storage and process holding tanks, which are not otherwise covered under Section 112.	Yes	A.A.C. R18-2-101.57(j)
Storage and piping of natural gas, butane, propane or LPG.	Yes	A.A.C. R18-2-101.57(j)
Diesel fuel storage tanks with capacity of 40,000 gallons or less.	Yes	A.A.C. R18-2-101.57(c)
Distribution of diesel fuel	Yes	A.A.C. R18-2-101.57(j)
Water treatment or storage for boiler feed water	Yes	A.A.C. R18-2-101.57(j)
Water treatment or storage or cooling system for process water	Yes	A.A.C. R18-2-101.57(j)
Chemical storage associated with water and wastewater treatment where water is treated for consumption and/or use within the permitted facility.	Yes	A.A.C. R18-2-101.57(j)
The collection, transmission, liquid treatment and solid treatment process and domestic type waste water and sewage treatment works, or treatment facilities, including septic tanks systems which treat only domestic type wastewater and sewage.	Yes	A.A.C. R18-2-101.57(j)
Housekeeping activities and associated products used for cleaning purposes, including collected spilled and accumulated materials at the source, including operation of fixed vacuum cleaning systems.	Yes	A.A.C. R18-2-101.57(a)

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Air conditioning, cooling, heating or ventilation equipment not designed to remove air contaminants generated by or released from associated or other equipment.	Yes	A.A.C. R18-2-101.57(a)
General office activities such as paper shredding, copying, photographic activities, and blueprinting, but not to include incineration.	Yes	A.A.C. R18-2-101.57(j)
Restroom facilities and associated cleanup operations and stacks or vents used to prevent escape of sewer gases through plumbing traps	Yes	A.A.C. R18-2-101.57(a)
Smoking rooms and areas	Yes	A.A.C. R18-2-101.57(j)
Use of consumer products including hazardous substances as that term defined in Federal Hazardous Substance Act (15 U.S.C. 1261, et. Seq.), where the product is used at a source in the manner as normal consumption.	Yes	A.A.C. R18-2-101.57(j)
Vacuum cleaning systems where system is used exclusively for industrial or commercial use.	Yes	A.A.C. R18-2-101.57(j)
Landscaping and site housekeeping activities	Yes	A.A.C. R18-2-101.57(a)
Fugitive emissions from landscaping activities	Yes	A.A.C. R18-2-101.57(a)
Use of pesticides, fumigants, and herbicides	Yes	A.A.C. R18-2-101.57(j)
Groundskeeping activities and products	Yes	A.A.C. R18-2-101.57(j)
Firefighting activities and training conducted at the source in preparation for firefighting.	No	Subject to A.A.C. R18-2-602
Flares used to indicate danger	Yes	A.A.C. R18-2-101.57(j)
Weed control	No	Subject to A.A.C. R18-2-602
Activities associated with the construction, repair or maintenance of roads and other paved or open areas, including street sweeper, vacuum trucks, spray trucks and other vehicles related to the control of fugitive emissions of such roads or other areas.	No	Subject to A.A.C. R18-2-605
Unpaved public and private roadways within a stationary source site boundary.	No	Subject to A.A.C. R18-2-605
Road and lot paving operations at commercial and industrial facilities.	No	Subject to A.A.C. R18-2-604
Sanding of streets and roads to abate traffic hazard caused by ice and snow.	Yes	A.A.C. R18-2-101.57(j)
Street and parking lot striping.	Yes	A.A.C. R18-2-101.57(j)

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Fugitive dust emissions from the operation of passenger automobiles, station wagon, pick up trucks or van at a stationary source.	No	Subject to A.A.C. R18-2-604
Cafeteria, kitchens and other facilities used for preparing food or beverages primarily for consumption at the source.	Yes	A.A.C. R18-2-101.57(j)
Equipment using water, water and soap or detergent or a suspension of abrasives in water for purpose of cleaning or finishing.	Yes	A.A.C. R18-2-101.57(j)
Construction and disturbance of surface areas for the purpose of land development.	No	Subject to A.A.C. R18-2-604
Activities at a source associated with maintenance, repair or dismantlement of an air emission unit installed at the source, including preparation for maintenance, repair or dismantlement and preparation for subsequent startup, including preparation of a shutdown vessel for entry, replacement of insulation, welding and cutting, and steam purging of vessel prior to startup; also includes maintenance, repair or dismantlement of building, utility lines, pipelines, wells, excavations, earthworks, and other structures that do not constitute an emission unit.	Yes	A.A.C. R18-2-101.57(j)
Containers, reservoirs, or tanks used exclusively in dipping operations to coat objects with oils, waxes or greases.	Yes	A.A.C. R18-2-101.57(j)
Activities directly used in the diagnosis and treatment of disease, injury or other medical condition.	Yes	A.A.C. R18-2-101.57(j)
Manually operated equipment used for buffing, polishing, carving, cutting, drilling, machining, routing, sawing, surface grinding or turning and associated venting hoods.	Yes	A.A.C. R18-2-101.57(j)
Individual sampling points, analyzers, and process instrumentation, whose operation may result in emissions.	Yes	A.A.C. R18-2-101.57(j)
Individual equipment that is transportable or activities within a facility established for testing units prior to sale or for the purpose of research.	No	Case by case
Individual flanges, valves, pump seals, pressure relief valves and other individual components that have the potential for leaks.	Yes	A.A.C. R18-2-101.57(j)
Brazing, soldering or welding operations	Yes	A.A.C. R18-2-101.57(j)
Battery recharge areas	Yes	A.A.C. R18-2-101.57(j)
Aerosol can usage	Yes	A.A.C. R18-2-101.57(j)

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Plastic pipe welding	Yes	A.A.C. R18-2-101.57(j)
Acetylene, butane and propane torches	Yes	A.A.C. R18-2-101.57(j)
Architectural painting and associated surface preparation for maintenance purposes at individual or commercial facilities.	Yes	A.A.C. R18-2-101.57(j)
Steam vents, condenser vents and boiler blowdown	Yes	A.A.C. R18-2-101.57(j)
Equipment used exclusively for portable steam cleaning	Yes	A.A.C. R18-2-101.57(j)
Blast cleaning equipment using a suspension of abrasive in water and any exhaust system or collector serving them exclusively.	Yes	A.A.C. R18-2-101.57(j)
Surface impoundments such as ash ponds, cooling ponds, evaporation ponds, settling ponds and storm water ponds.	Yes	A.A.C. R18-2-101.57(j)
Pump/motor oil reservoirs, such as gear box lubrication	Yes	A.A.C. R18-2-101.57(j)
Transformer vents	Yes	A.A.C. R18-2-101.57(j)
Lubrication system vents	Yes	A.A.C. R18-2-101.57(j)
Hydraulic system reservoirs	Yes	A.A.C. R18-2-101.57(j)
Adhesive use which is not related to production	Yes	A.A.C. R18-2-101.57(j)
Caulking operations which are not a part of production process	Yes	A.A.C. R18-2-101.57(j)
Electric motors	Yes	A.A.C. R18-2-101.57(j)
Cathodic protection systems	Yes	A.A.C. R18-2-101.57(j)
High voltage induced corona	Yes	A.A.C. R18-2-101.57(j)
Production of hot/chilled water for on-site use not related to any industrial application	No	Subject to A.A.C. R18-2-724
Safety devices such as fire extinguishers	Yes	A.A.C. R18-2-101.57(j)
Soil gas sampling	Yes	A.A.C. R18-2-101.57(j)
Filter draining	Yes	A.A.C. R18-2-101.57(j)
General vehicle maintenance and servicing activities	Yes	A.A.C. R18-2-101.57(j)
Station transformers	Yes	A.A.C. R18-2-101.57(j)
Circuit breakers	Yes	A.A.C. R18-2-101.57(j)
Generation unit gas vents	Yes	A.A.C. R18-2-101.57(j)
Storage cabinet for flammable products	Yes	A.A.C. R18-2-101.57(j)
Fugitive emissions from landfill operations	No	Subject to A.A.C. R18-2-730
HVAC vents	Yes	A.A.C. R18-2-101.57(j)

IX. LIST OF ABBREVIATIONS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
Btu/ft ³	British Thermal Units per Cubic Foot
CO	Carbon Monoxide
g	Grams
HAP	Hazardous Air Pollutant
hp	Horsepower
hr	Hour
IC	Internal Combustion
lb	Pound
m	Meter
MMBtu	Million British Thermal Units
NO _x	Nitrogen Oxide
PM	Particulate Matter
PM ₁₀	Particulate Matter Nominally less than 10 Micrometers
PTE	Potential-to-Emit
SO ₂	Sulfur Dioxide
TPY	Tons per Year
VOC	Volatile Organic Compound
yr	Year